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ABSTRACT

Investigated was the effectiveness of a flashcard and fading tutoring procedure in increasing the spelling performance of a 9-year-old boy. The S practiced word completion four times a week (20 minutes per session) on four different words each session, and was tested at the end of each week on all 16 words. During 3 weeks of tutoring, S's spelling test scores increased from eight or less words correct to a mean of 14.33 words correct. (LS)

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Increasing Weekly Spelling Test Scores through the use of Flashcards and Fading

by

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Special Education Area
College of Education and Social Services
University of Vermont
1973

At the time of this study (September, 1973 - December, 1974) Ann Perrigo was a student at the University of Vermont and David Unruh was a Consulting Teacher in Training in the Special Education Area of the University of Vermont. This study was conducted in partial fulfillment of the course objectives for Education 216 and Education 312 concerning service to a student eligible for special education services. This practicum was directly supervised by Phyllis Paolucci and Pat Pierson.

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Studies by Christie (1970), Noonan (1970) and Noonan (1971) showed that weekly spelling test scores can be increased through the use of consequences made contingent upon the child receiving a spelling test score at or above a preset criterion level. The studies reported that classroom privileges, permission to attend a weekly Boy Scout Meeting, and having the test paper marked with big red "C's" on all correctly spelled words were effective in increasing spelling test scores. The studies clearly showed that the application of the principles of applied behavioral analysis was effective for increasing spelling accuracy.

Spelling accuracy is an important behavior in that much of the communication that occurs between and among individuals is in the form of the written word. In order to make one's self understood, and to express ideas through writing, the writer must be proficient enough in spelling to insure that the reader can comprehend the meaning of the message. For these reasons, this study was of importance to the areas of applied behavioral analysis and special education.

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Description of the Child

Jimmy was a nine year old fourth grade boy who attended a parochial school in Burlington, Vermont. Jimmy had transferred to the school from an elementary school in a rural area of Vermont at the beginning of the school year. The parochial school was located in a "middle class" section of Burlington and the school was in close proximity to the University of Vermont and Trinity College Campuses.

Jimmy's teacher initially referred him in the areas of reading and spelling. Through entry level test measures in reading, it was found that Jimmy was reading at or nearly at grade level in the areas of oral reading accuracy and comprehension. Jimmy's past spelling tests indicated that he had a large deficit in this area.

The referring teacher reported that Jimmy was a hard working student and that he presented no classroom "behavior" problems at all. She also said that he had adjusted very quickly to his new school and had made friends very readily with the children in his class.

The background information available on the permanent records was very sparse. Complete records hadn't been transferred to the school at the time the study was begun. Jimmy had not received any special services prior to this study. No information concerning standardized tests was available.

Measurement Procedures

Scores for each of the tests were computed by dividing the number of words spelled correctly by the total number of words on the test and then multiplying the quotient by one hundred. On the graph that accompanies this paper, however, the number of words spelled correctly is given as opposed to recording the percentage. (See Figure #1) During baseline measures, whenever Jimmy received a grade on a spelling test that was computed to be less than fifty percent, or eight right, the teacher placed a fifty percent score on the paper and not the exact numerical score. The teacher felt that receiving a grade of less than fifty was unnecessarily punishing to the child. The teacher also recorded the spelling grade in her record book as a fifty.

Six weekly tests were given under these conditions using the fourth grade level speller and Jimmy never got more than eight of the words correct on any test.

The test papers were corrected by using the teaching manual and a red "X" was placed next to any misspelled words on the sheet.

Reliability Procedures

Reliability was provided by a second observer

correcting and scoring the permanent product. If one hundred percent agreement was not achieved, the test would be rescored until total agreement was reached. Reliability was provided during weeks 7, 8, and 9 with 100% observer agreement on all three occasions.

Materials

The only materials needed were a stack of index cards (3 X 5) on which the tutor wrote the words to be learned and words as they appeared when letters were systematically faded. In addition to this, weekly tests were taken from the Lyons and Carnahan fourth grade speller, My Word Book. The authors of this book were Rogers, Ort and Serra and the edition used was Copyrighted in 1970.

Rationale for Principles Used

A fading procedure was chosen because it was hoped that the technique could be used at home by Jimmy's mother after the study was completed. The procedure provided Jimmy with immediate feedback during the tutoring sessions as to when he had correctly or incorrectly completed the spelling of the words when some or all of the letters had been faded.

Procedures

Tutoring sessions were held on Monday through Thursday of each week. During each of the sessions, the following steps were used:

A. The list of sixteen words was divided into four groups of four words each. Four words were used on each of the days so that all of the words were reviewed by Thursday of each week.

B. The tutor gave Jimmy a pre-test on the four words to be learned on that day. She immediately recorded the number of words spelled correctly.

C. The tutor used a flashcard procedure. The first step was to present a flashcard for each word. The card was held up and the student was instructed to look at the word and pronounce it if he could. If the word was not pronounced by the student, the tutor said the word and had the child imitate her. This process was followed for each of the four words.

D. A flashcard was presented to Jimmy which showed all of letters of the word minus the first. The student was instructed to write the missing letter and was praised for responding correctly. If he did not respond correctly, the tutor wrote the word on another card and the child used this as a model for writing the word correctly below the teacher's word. Each of the four words was presented in the same manner.

E. Each word was presented again but with the first two letters of the words missing. The child was asked to complete the word and received praise if he did this correctly or a model to imitate if his response was incorrect.

F. Each succeeding flashcard would leave off one additional letter until the tutor presented a flashcard that had only the number of dashes on it that corresponded to the number of letters in the word. The teacher told the child to spell the word on the flashcard using the teacher's pronounciation of the word and the

dashes as guides, no further presentation of that word was made.

G. The procedure continued for each of the words until the student could correctly spell the word using only the tutor's oral presentation of the word as a guide.

H. After each of the words had been correctly spelled on the flashcards, the tutor gave Jimmy a post test on the four words and recorded the number of words spelled correctly. If all of the words were spelled correctly, the tutoring session was ended. If any of the words was incorrectly spelled, the flashcard procedure was repeated for any of those words misspelled until Jimmy was able to spell the word correctly when the word was said by the tutor.

I. The procedure was repeated on each of the four days with four different words. At the end of the tutoring session on Thursday, the tutor gave a test on all sixteen of the words and

recorded the score. The pre and post-test data is available, but has not been included in these tests and they were not the main measurement of concern throughout the study.

Evaluation Design

To determine whether or not there was an increase in the target behavior following the implementation of the teaching/learning procedures, an AB evaluation design was employed.

Management System

The tutoring sessions were conducted on Monday through Thursday from 9:15 until 9:35. Special tutoring rooms were available adjacent to the regular classroom and all of the tutoring was done in one of the three rooms available.

Reliability was provided during the study on three occasions and the results of these reliability checks can be found at the end of this paper. (See Figure #2)

Results

Baseline: Because of the classroom teacher's

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recording procedure which was described earlier in this paper, the exact scores of the baseline tests were not available to the authors. In each case, however, the test score for each test was less than fifty percent or eight or less words spelled correctly on each test. For this reason, during each of the weeks of baseline testing, a point was placed on the graph to indicate eight words spelled correctly per week.

Tutoring: During this phase of the study, the range on the test was from 13 words to 15 words spelled correctly with a mean of 14.33 words.

Discussion

The results of this study indicate that Jimmy's spelling test scores did increase during the time that tutoring (the fading and flashcard procedures) was in effect.

During the parent consultation, Jimmy's mother agreed to continue the procedures used during the study with Jimmy at home. She also said that she would be willing to provide a consequence in the form of a positive reinforcer for Jimmy whenever his weekly tests scores were at or above the level specified in the instructional objective.

Jimmy's teacher indicated that she would allow Jimmy to continue to work in the fourth level book instead of placing him in a lower level book as she had planned before the tutoring began. She indicated that she would do this as a result of the effects of the tutoring process which indicated that Jimmy was capable of spelling grade level words.

In summary, this study indicates that a flashcard and fading tutoring procedure can result in increased spelling performance.

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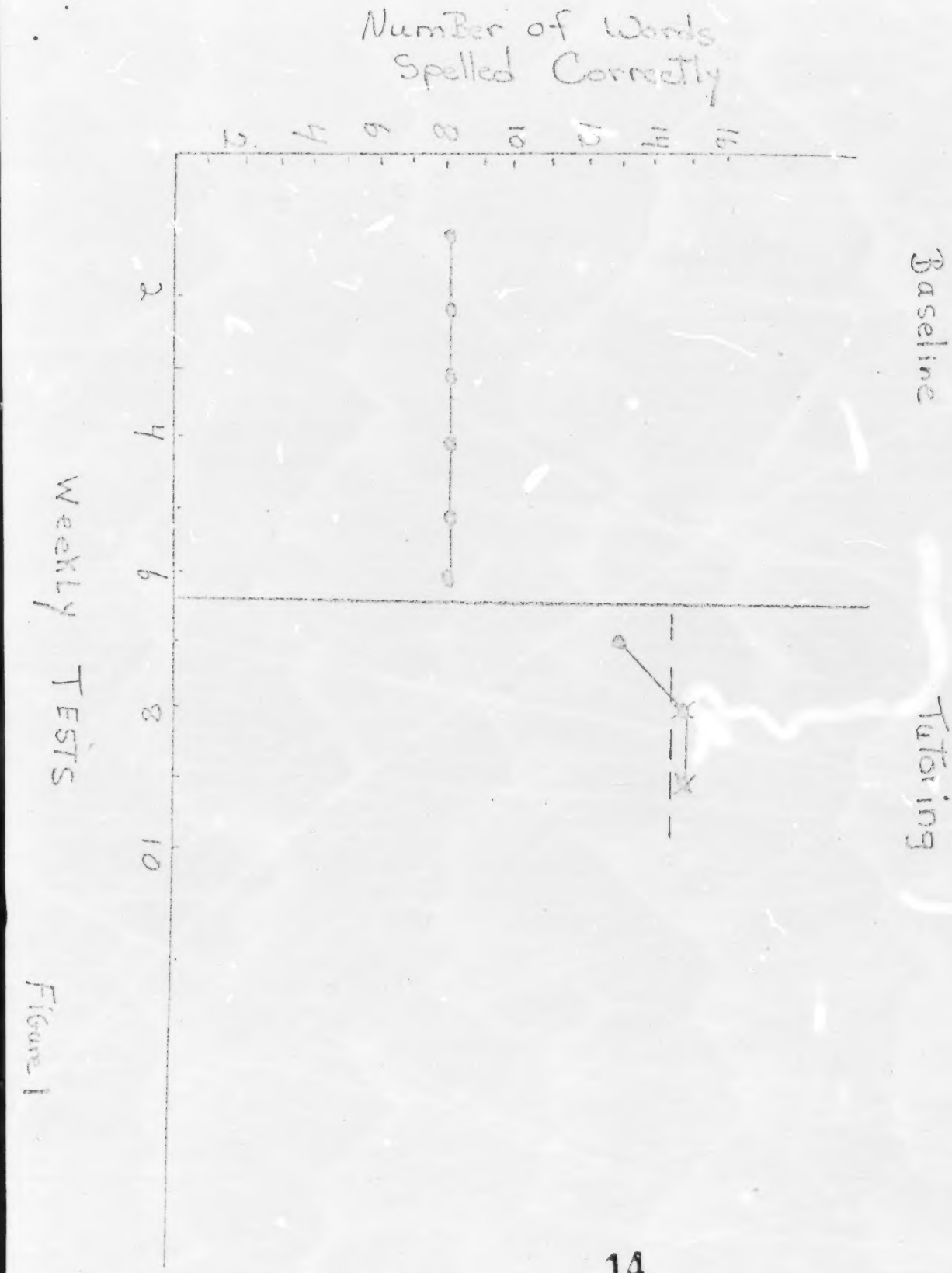
Number of Words Spelled Correctly
Baseline
Tutoring
Weekly TESTS

Figure 1